



A publication of Fairfax County, Virginia



CODE COMPLIANCE GUIDELINE **SPRINKLER SYSTEM WINTERIZATION**

FOR BUILDINGS WITH AUTOMATIC FIRE SPRINKLER SYSTEMS

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This publication outlines the *Virginia Statewide Fire Prevention Code* (i.e., Fire Prevention Code or SFPC) requirements related to the maintenance of automatic fire sprinkler systems located in Fairfax County and the towns of Clifton, Herndon, and Vienna prior to and during the onset of freezing weather.

Questions regarding this publication should be directed to the Fire Protection Systems Branch at 703-246-4821 during regular office hours, Monday thru Friday, 5:00 a.m. to 3:00 p.m.

OVERVIEW

Owner Responsibility. In accordance with Section 110.2 of the Fire Prevention Code, the owner is responsible for the safe and proper maintenance of any structure or premises. In all structures the fire protection equipment, means of egress, alarms, devices and safeguards shall be maintained in a safe and proper operating condition.

Code Requirements. Sections 901.4 and 901.6 of the Fire Prevention Code require fire protection systems to be maintained in an operative condition at all times in accordance with the original installation standards for that system. Additionally, Section 901.6.1 of the Fire Prevention Code requires that automatic fire sprinkler systems be inspected, tested, and maintained in accordance with NFPA 25 (*Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2008 Edition). This publication cites specific procedures from NFPA 25 related to the maintenance of automatic fire sprinkler systems prior to and during freezing weather, which can be effective in the prevention of frozen systems.

PROCEDURES

- ☐ **Minimum Sprinkler System Temperature.** Annually, prior to the onset of freezing weather, buildings with wet pipe sprinkler systems must be inspected to verify that windows, skylights, doors, ventilators, other openings and closures, blind spaces, unused attics, stair towers, roof houses, and low spaces under buildings do not expose water filled sprinkler piping to freezing and to verify that adequate heat (minimum 40°F) is available.
- ☐ **Daily Valve Room Check.** Sprinkler valve rooms subject to freezing conditions not equipped with low temperature alarms must be inspected daily during cold weather to ensure a minimum temperature of 40°F is constantly maintained.
- ☐ **Weekly Valve Room Check.** Sprinkler valve rooms equipped with low temperature alarms must be inspected annually prior to the onset of freezing weather conditions and at least weekly thereafter to ensure a minimum temperature of 40°F is constantly maintained.

- ☐ **System Gauges.** Gauges on wet pipe sprinkler systems must be inspected monthly to ensure that they are in good condition and normal water supply pressure is being maintained. Gauges on dry, pre-action, and deluge sprinkler systems must be inspected weekly to ensure that normal water and compressed air pressures are being maintained.
- ☐ **Anti-freeze System Solution Testing.** For wet pipe sprinkler systems designed for and protected with an anti-freeze solution, the freezing point of the solution must be tested annually by measuring the specific gravity with a hydrometer or refractometer and adjusting the solution as needed. It is important that the use of anti-freeze solutions be in accordance with state or local health codes.
- ☐ **Anti-freeze System Solution Replacement.** The anti-freeze solution must be tested at its most remote portion of the sprinkler piping and where it interfaces with the wet pipe sprinkler system. When an anti-freeze system has a capacity larger than 150 gal, tests at one additional point for every 100 gal must be made. If the test results indicate an incorrect freezing point at any point in the system, the sprinkler system must be drained, the solution adjusted, and the system refilled. For premixed solutions, the manufacturer's instructions must be used with regard to the number of test points and refill procedure.
- ☐ **Weekly Dry System Auxiliary Drain Check.** It is strongly recommended that, prior to the onset of and during freezing weather conditions, a weekly routine be implemented to drain each auxiliary drain assembly (drip drum) in all dry pipe sprinkler systems. By draining the standing water captured in the auxiliary drain drums, the potential for broken sprinkler pipes is reduced. Draining the standing water in the auxiliary drain drums should be done regularly on the same day each week (i.e., Mondays, Tuesdays, etc.)
- ☐ **Weekly Dry System Air Pressure Check.** Once each week, check the system air pressure gauge of each dry pipe sprinkler system to ensure that the compressed air pressure in the sprinkler system piping has not dropped below NORMAL. It is recommended that every system air pressure gauge have a NORMAL mark indicated on the face of the gauge. If a system air pressure gauge is found below NORMAL, double check each auxiliary drain assembly (drip drum) to ensure that the bottom valve is fully closed and/or properly plugged.

In Fairfax County, experience has shown that by implementing the above listed maintenance procedures prior to and during freezing weather conditions, property owners/managers can prevent unwanted costs associated with the damage resulting from frozen sprinkler systems.

VACANT PREMISES. In accordance with Section 311.2.2 of the Fire Prevention Code, fire sprinkler and stand-pipe systems shall be maintained in an operable condition at all times in temporarily unoccupied buildings, structures, premises or portions thereof. However, where approved by the fire chief in writing, and provided that all the requirements of Section 311 of the Fire Prevention Code are met, buildings that will not be heated and where fire protection systems will be exposed to freezing temperatures, sprinkler systems are permitted to be placed out of service and standpipes are permitted to be maintained as dry systems (without an automatic water supply), provided the building has no contents or storage, and windows, doors and other openings are secured to prohibit entry by unauthorized persons.

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